

**SAF-RC-207**

**Remedial Action of the 100-C-7 &**

**100-C-7:1 Waste Sites – In-Process**

**FINAL DATA PACKAGE**

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt

H4-21

KW 3/14/13

INITIAL/DATE

**COMMENTS:**

**SDG J01745**

**SAF-RC-207**

Rad only

Chem only

Rad & Chem

Complete

Partial

**Sample Location: 100-C-7:1 (034 footprint)**

Analytical Data Package Prepared For  
**Washington Closure Hanford**

Radiochemical Analysis By  
**TestAmerica**

*2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.*

Assigned Laboratory Code: TARL

*Data Package Contains 22 Pages*

Report No.: 54839

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
J01745	RC-207	J1RJ45	J3C120422-1	M0CKX1AA	9M0CKX10	3071064
		J1RJ46	J3C120422-2	M0CK01AA	9M0CK010	3071064
		J1RJ47	J3C120422-3	M0CK11AA	9M0CK110	3071064
		J1RJ48	J3C120422-4	M0CK21AA	9M0CK210	3071064



THE LEADER IN ENVIRONMENTAL TESTING

## Certificate of Analysis

TestAmerica Laboratories, Inc.

Washington Closure Hanford  
2620 Fermi Avenue  
Richland, WA 99354

March 14, 2013

Attention: Joan Kessner

SAF Number	:	RC-207
Date SDG Closed	:	March 12, 2013
Number of Samples	:	Four (4)
Sample Type	:	Soil
SDG Number	:	J01745
Data Deliverable	:	Quick Turn / Summary

### CASE NARRATIVE

#### I. Introduction

On March 12, 2013, four soil samples were received at TestAmerica for chemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID;

<u>WCH ID#</u>	<u>TARL ID#</u>	<u>MATRIX</u>	<u>DATE OF RECEIPT</u>
J1RJ45	M0CKX	SOIL	03/12/13
J1RJ46	M0CK0	SOIL	03/12/13
J1RJ47	M0CK1	SOIL	03/12/13
J1RJ48	M0CK2	SOIL	03/12/13

#### II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

#### III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors. The requested analyses were:

**Chemical Analysis**  
Hexavalent Chromium by EPA method 7196A

#### IV. Quality Control

SDG J01745 includes a minimum of one Laboratory Control Samples (LCS), one method (reagent) blank, a duplicate sample, matrix spike sample and a matrix spike duplicate sample. Any exceptions have been noted in the "Comments" section.

Washington Closure Hanford  
March 14, 2013

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Blanks and LCS are reported in mg/L units, other QC and sample results are reported in the same units.

**V. Comments**

**Chemical Analysis**

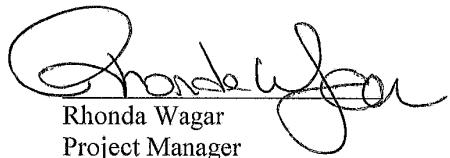
Hexavalent Chromium by EPA method 7196A

Batch 3071064:

The LCS, batch blank, samples, sample duplicate (J1RJ45) and sample matrix spike (J1RJ45) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:



Rhonda Wagar  
Project Manager

## Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

**Results in this report relate only to the sample(s) analyzed.**

## Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,...)$ . The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties ( $u_i$ ) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty ( $u_c$ ) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ( $S/\sqrt{n}$ ), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

## Report Definitions

<b>Action Lev</b>	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
<b>Total Uncert (#s) <math>u_e</math> - Combined Uncertainty.</b>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, $u_e$ the <i>combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
<b>Lc</b>	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (\text{BkgndCnt} / \text{BkgndCntMin}) / SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
<b>Lot-Sample No</b>	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
<b>MDC MDA</b>	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{((\text{BkgndCnt} / \text{BkgndCntMin}) / SCntMin) + 2.71 / SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
<b>Rst/MDC</b>	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Rst/TotUcert</b>	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order Number</b> .
<b>RER</b>	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUs^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

**Sample Results Summary****Date:** 14-Mar-13**TestAmerica TARL**

Ordered by Method, Batch No., Client Sample ID.

**Report No. :** 54839**SDG No:** J01745

Client Id Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
<b>3071064_7196_CR6</b>									
<b>J1RJ45</b>									
	M0CKX1AA	HEXCHROME	2.23E+00 +/- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
	M0CKX1AD	HEXCHROME	2.39E+00 +/- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	6.9
<b>J1RJ46</b>									
	M0CK01AA	HEXCHROME	1.55E-01 +/- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
<b>J1RJ47</b>									
	M0CK11AA	HEXCHROME	1.83E+00 +/- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
<b>J1RJ48</b>									
	M0CK21AA	HEXCHROME	1.55E-01 +/- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
<b>No. of Results:</b> 5									

**TestAmerica**

RPD - Relative Percent Difference.

**rptSTLRchSaSum  
mary2 V5.2.23  
A2002**

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

**QC Results Summary**  
**TestAmerica TARL**  
 Ordered by Method, Batch No, QC Type,.

Date: 14-Mar-13

Report No. : 54839

SDG No.: J01745

Batch	Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
<b>7196_CR6</b>									
3071064	MATRIX SPIKE, J1RJ45								
MOCKX1AC	HEXCHROME	2.76E+01	+- 0.0E+00		mg/kg	N/A	89%	-0.1	1.55E-01
3071064	LCS,								
MOCLG1AC	HEXCHROME	1.80E+01	+- 0.0E+00		mg/kg	N/A	95%	-0.1	1.55E-01
3071064	BLANK QC,								
MOCLG1AA	HEXCHROME	1.55E-01	+- 0.0E+00	U	mg/kg	N/A			1.55E-01
No. of Results: 3									

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TestAmerica      Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLRchQcSum      U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or  
 mary V5.2.23      not identified by gamma scan software.  
 A2002

**FORM I**  
**SAMPLE RESULTS**

Date: 14-Mar-13

Lab Name: TestAmerica  
 Lot-Sample No.: J3C120422-1  
 Client Sample ID: J1RJ45

SDG: J01745  
 Report No.: 54839  
 COC No.: RC-207-175

Parameter	Result	Count	Total	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUncrt	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3071064	7196 CR6	Work Order: MOCKX/IAA					Report DB ID: 9MOCKX10				
HEXCROME	2.23E+00	0.0E+00	1.55E-01	mg/kg	N/A	(14.4)	3/12/13 03:00 p	2.5052			g

No. of Results: 1      Comments:

**FORM I**  
**SAMPLE RESULTS**

Date: 14-Mar-13

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J3C120422-2  
**Client Sample ID:** J1RJ46

**SDG:** J01745  
**Report No. :** 54839  
**COC No. :** RC-207-175

Collection Date: 3/12/2013 11:53:00 AM

Received Date: 3/12/2013 1:52:00 PM

Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count	Total	MDL,	Rpt Unit,	Yield	Rst/MDL,	Analysis,	Total Sa	Aliquot	Primary
		Qual	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Size	Detector
Batch: 3071064	7196	CR6	Work Order: M0CK01AA			Report DB ID: 9M0CK010					
HEXCHROME	1.55E-01	U	0.0E+00	1.55E-01	mg/kg	N/A	1.	3/12/13 03:00 p	2.5071		

No. of Results: 1      Comments:

**FORM I**  
**SAMPLE RESULTS**

Date: 14-Mar-13

Lab Name: TestAmerica  
 Lot-Sample No.: J3C120422-3  
 Client Sample ID: J1RJ47

SDG: J01745  
 Report No. : 54839  
 COC No. : RC-207-175

Collection Date: 3/12/2013 11:57:00 AM

Received Date: 3/12/2013 1:52:00 PM

Matrix: SOIL

Parameter	Result	Count	Total	Rpt Unit,	Yield	Analysis,	Total Sa	Aliquot	Primary
	Qual	Error. (2 s)	Uncert(2 s)	MDL, Action Lev	Rst/MDL, CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Detector
Batch: 3071064	7196_CR6	Work Order:	MOCK11AA	Report DB ID: 9M0CK110					
HEXCHROME	1.83E+00	0.0E+00	1.55E-01	mg/kg	N/A	(11.8)	3/12/13 03:00 p	2.5179	g

No. of Results: 1      Comments:

**FORM I**  
**SAMPLE RESULTS**

Date: 14-Mar-13

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J3C120422-4  
**Client Sample ID:** J1RJ48

**SDG:** J01745  
**Report No. :** 54839  
**COC No. :** RC-207-175

**Collection Date:** 3/12/2013 12:04:00 PM  
**Received Date:** 3/12/2013 1:52:00 PM  
**Matrix:** SOIL

Parameter	Result	Count	Total	Rpt Unit,	Yield	Analysis,	Total Sa	Aliquot	Primary
		Error (2 s)	Uncert(2 s)	MDL, Lc	CRDL(RL)	Rst/TotUncrt	Prep Date	Size	Detector
Batch: 3071064 HEXCHROME	7196 CR6	1.55E-01	0.0E+00	Work Order: MOCK21AA	Report DB ID: 9M0CK210				
		U		Action Lev 1.55E-01	mg/kg	N/A	3/12/13 03:00 p	2.5188	

No. of Results: 1      Comments:

**FORM II**

Date: 14-Mar-13

**DUPLICATE RESULTS**

**Lab Name:** TestAmerica  
**Lot-Sample No.:** J3C120422-1  
**Client Sample ID:** J1RJ45

**SDG:** J01745  
**Report No.:** 54839  
**COC No.:** RC-207-175

Parameter	Result, Orig Rst	Count	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Rst/MDL, Yield	Rst/TotUcert	Report DB ID: MOCKX1AD	Rst/MDL, Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3071064	7196_CR6			Work Order: MOCKX1AD		Report DB ID: MOCKX1ER		Orig Sa DB ID: 9M0CKX10				
HEXCHROME	2.39E+00	0.0E+00	1.55E-01	mg/kg	N/A	(15.4)	N/A	3/12/13 03:00 p	3/12/2013 11:47:00 AM	2.5021	g	
	2.23E+00	RPD 6.9	1.55E-01									

No. of Results: 1      Comments:

**FORM II**  
**BLANK RESULTS**

Date: 14-Mar-13

Lab Name: TestAmerica  
 Matrix: SOIL

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncrt	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 3071064	7196_CR6			Work Order: M0CLG1AA				Report DB ID: M0CLG1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	3/12/13 03:00 p		2.5	g

No. of Results: 1      Comments:

Date: 14-Mar-13

**FORM II**  
**LCS RESULTS**

**Lab Name:** TestAmerica  
**Matrix:** SOIL

**SDG:** J01745  
**Report No.:** 54839

Parameter	Result	Count	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Uncert	Recovery,	Analysis,	Aliquot Size	Primary Detector
Batch: 3071064	7196_CRG		Work Order: M0CLG1AC		Report DB ID: M0CLG1AS							
HEXCHROME	1.80E+01	0.0E+00	1.55E-01	mg/kg	N/A	1.90E+01			95%	3/12/13 03:00 p	2.5	g

No. of Results: 1      Comments:

**FORM II**  
**MATRIX SPIKE RESULTS**

Date: 14-Mar-13

Lab Name: TestAmerica  
 Lot-Sample No.: J3C120422-1, J1RJ45

SDG: J01745  
 Report No. : 54839

Parameter	SpikeResult, Orig Rst	Qual	Count	Total Uncert(2 s)	MDC(MDA	Rpt Unit, CRDL	Rec- covery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 3071064	Work Order: M0CKX1AC			Report DB ID: M0CKX1CW	Orig Sa DB ID: 9M0CKX10						
HEXCHROME	2.76E+01		0.0E+00	1.55E-01	mg/kg	N/A	88.91%	3.11E+01	3/12/13 03:00 p	2.513	7196_CRF6
			2.23E+00							g	

Number of Results: 1

Comments:

**Richland Laboratory**  
**Data Review Check List**  
**Hexavalent Chromium**

Batch Number(s):	3071064	Lab Sample Numbers or SDG:	J01745
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Method/Test/Parameter: Cr+6  RL-WC-003(Aqueous)  RL-WC-004(Solid)

Review Item	Yes (✓)	No (✗)	N/A (✗)	2 <sup>nd</sup> Level Review (✓)
<b>A. Initial Calibration</b>				
1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient greater than 0.97?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters $\leq$ reporting limit?	✓			✓
<b>B. Continuing Calibration</b>				
1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓
2. CCB analyzed at required frequency and all results $\leq$ reporting limit?	✓			✓
<b>C. Sample Analysis</b>			✓	
1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
<b>D. QC Samples</b>				
1. All results for the preparation blank below limits?	✓			✓
2. LCS percent recovery within 85-115%	✓			✓
3. PbCrO <sub>4</sub> percent recovery within 75-125%?	✓			✓
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			✓
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓
6. On MS failure, PDMS within 85-115%?			✓	✓
<b>E. Other</b>			✓	
1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response or list NCM number:

Analyst H. Rahari

Date 3/13/13 2<sup>nd</sup> Review

  
Date 3/13/13

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-207-175		Page 1 of 1	
Collector R. Brackett	Company Contact Joan Kessner	Telephone No. 509-375-4688	Project Coordinator KESSNER, TH	Price Code QT	SAF No. RC-207	Method of Shipment Hand deliver		Data Turnaround <u>21 Days</u> R.F. 3-12-13	
Project Designation Remedial Action of the 100-C-7 & 100-C-7-1 Waste Sites - 1	Sampling Location 100-C-7-1 (034 footprint)	Field Logbook No. EL-1655-08	COA R00C712600						
Ice Chest No. N/A	Offsite Property No. N/A								
Shipped To TestAmerica Incorporated, Richland									
POSSIBLE SAMPLE HAZARDS/REMARKS None									
Special Handling and/or Storage Cool 4 degrees centigrade									
52C1300123 501n45 Due 3-13-13 S J3C120422									
Sample No.	Matrix *	Sample Date 3/12/13	Sample Time 1147	SPECIAL INSTRUCTIONS					
J1R45 M <del>OCK</del> X <del>Y</del> X	SOIL	3/12/13	1153						
J1R46 M <del>OCK</del> X <del>O</del> O	SOIL	3/12/13	1157						
J1R47 M <del>OCK</del> X <del>Y</del> 1	SOIL	3/12/13	1204						
J1R48 M <del>OCK</del> X <del>Z</del> 2	SOIL	3/12/13							
CHAIN OF POSSESSION									
Relinquished By/Removed From D.B. BLACKETT	Date/Time 3-12-13	Received By/Stored In SM Sexton	Date/Time 3-12-13						
Relinquished By/Removed From SM. Sexton	Date/Time 3-12-13	Received By/Stored In A. Freier	Date/Time 3-12-13						
Relinquished By/Removed From A. Freier	Date/Time 3-12-13	Received By/Stored In S. Cox	Date/Time 3-12-13						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time						
LABORATORY SECTION	Received By		Title						
FINAL SAMPLE DISPOSITION	Disposal Method		Date/Time						



Matrix \*  
S=Soil  
SE=Sand  
SO=Soil  
SI=Sludge  
W=Water  
O=Oil  
A=Air  
DS=Drum Solids  
T=Tissue  
L=Liquid  
W=Wipe  
V=Vegetation  
X=Other

**Sample Check-in List**

Date/Time Received: 3-12-13 / 1352 Container GM Screen Result: (Airlock) .10 Initials B  
 Sample GM Screen Result (Sample Receiving) .10 Initials B

Client: WCH SDG #: SD 1745 NA [ ] SAF #: RL-207 NA [ ]

Lot Number: 53C120422

Chain of Custody # RL-207-175

Shipping Container ID: Hand de On NA N Air Bill Number: \_\_\_\_\_ NA N

Samples received inside shipping container/cooler/box Yes B Continue with 1 through 4. Initial appropriate response.

No [ ] Go to 5, add comment to #16.

- |  |                          |         |                              |
|--|--------------------------|---------|------------------------------|
| 1. Custody Seals on shipping container intact? | Yes [ ]                  | No [ ]  | No Custody Seal <u>B</u> [ ] |
| 2. Custody Seals dated and signed?             | Yes [ ]                  | No [ ]  | No Custody Seal <u>B</u> [ ] |
| 3. Cooler temperature:                         | <u>9.5 °F</u> See NA [ ] |         |                              |
| 4. Vermiculite/packing materials is            | NA <u>N</u> [ ]          | Wet [ ] | Dry [ ]                      |

Item 5 through 16 for samples. Initial appropriate response.

- |   |                   |        |
|---|-------------------|--------|
| 5. Chain of Custody record present?                                       | Yes <u>B</u> [ ]  | No [ ] |
| 6. Number of samples received (Each sample may contain multiple bottles): | <u>4</u>          |        |
| 7. Containers received:   | <u>4 x 125 mL</u> |        |

- |                                   |   |         |                 |
|-----------------------------------|---|---------|-----------------|
| 8. Sample holding times exceeded? | NA [ ]  | Yes [ ] | No <u>B</u> [ ] |
| 9. Samples have:                  | <input checked="" type="checkbox"/> tape <input type="checkbox"/> hazard labels<br><input checked="" type="checkbox"/> custody seals <input type="checkbox"/> appropriate sample labels   |         |                 |
| 10. Matrix:                       | <input checked="" type="checkbox"/> A (FLT, Wipe, Solid, Soil) <input type="checkbox"/> I (Water)<br><input type="checkbox"/> S (Air, Niosh 7400) <input type="checkbox"/> T (Biological, Ni-63)  |         |                 |
| 11. Samples:                      | <input checked="" type="checkbox"/> are in good condition <input type="checkbox"/> are leaking<br><input checked="" type="checkbox"/> are broken <input type="checkbox"/> have air bubbles (Only for samples requiring no head space)<br><input type="checkbox"/> Other _____ |         |                 |

12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA B [ ]  
 (If acidification is necessary, then document sample ID, initial pH, amount of HNO<sub>3</sub> added and pH after addition on table overleaf)

13. RPL ID # of preservative used : N/A

14. Were any anomalies identified in sample receipt? Yes [ ] No B [ ]

14. Description of anomalies (include sample numbers): NA N \_\_\_\_\_

15. Sample Location, Sample Collector Listed on COC? \* Yes  ] No [ . ]  
\*For documentation only. No corrective action needed.

16. Additional Information: N/A

Client/Courier denied temperature check.  Client/Courier unpack cooler.

Sample Custodian: Jean Bock Date: 3-12-13

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person contacted \_\_\_\_\_

No action necessary; process as is.

Project Manager Amberly A Date 3/12/13

J3 C120422

W3/2/13

LS-023, Rev. 15, 07/11

See over for additional information

3/12/2013 3:05:18 PM

**Sample Preparation/Analysis**127642, Washington Closure Hanford LLC  
Washington Closure Hanford LLCDW Alkaline Digestion by method 3060A  
EA Chromium, Hexavalent (7196A)**AnalyDueDate:** 03/13/2013

5f CLIENT: HANFORD

**Batch:** 3071064

SEQ Batch, Test: None

**SOIL**All Tests: 3071064 DWEA,  
**mg/kg****PM, Quote:** RW2, 88144**Work Ord, Lot, Sample Date****Total Amt/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

1 MOCKX-1-AA

J3C120422-1-SAMP

03/12/2013 11:47

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

2 MOCKX-1-AC-S

J3C120422-1-MS

03/12/2013 11:47

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

3 MOCKX-1-AD-X

J3C120422-1-DUP

03/12/2013 11:47

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

4 MOCKX-1-AE-S

J3C120422-1-DUP

03/12/2013 11:47

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

5 MOCK0-1-AA

J3C120422-1-MS

03/12/2013 11:47

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

6 MOCK1-1-AA

J3C120422-2-SAMP

03/12/2013 11:53

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

7 MOCK2-1-AA

J3C120422-3-SAMP

03/12/2013 11:57

#Containers: 1

AntRec: 1X125MLP

Alpha:

Beta:

**Work Ord, Lot, Sample Date****Total Acidified/Unit****Initial Aliquot Amt/Unit****Adj Aliq Amt (Un-Acidified)****QC Tracer Prep Date****Ppt or Geometry****Dish Size****Tracer Yield****Count Time Min****Detector Id****Count On | Off (24hr) Circle****CR Analyst, Init/Date****Comments:****Prep Tech:****Sep2 DT/Tm Tech:****Sep1 DT/Tm Tech:****Pipet #:****Balance Id:**

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2  
pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 7

ICOC v4.8.49

3/12/2013 3:05:18 PM

**Sample Preparation/Analysis**

Balance Id:

DW Alkaline Digestion by method 3060A  
 EA Chromium, Hexavalent (7196A)  
 51 CLIENT: HANFORD

AnalyDueDate: 03/13/2013  
 SEQ Batch, Test: None

Batch: 3071064  
 mg/kg

SEQ Batch, Test: None

Work Ord. Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On 1 Off (24hr) Circle	CR Analyst, InitDate	Comments:
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8 MOCLG-1-AA-B

J3C120000-64-BLK  
  
 03/12/2013 15:05 pd  
 AntRec:

#Containers: 1

9 MOCLG-1-AC-C

J3C120000-64-LCS  
  
 03/12/2013 15:05 pd  
 AntRec:

#Containers: 1

Comments:

Scr: Alpha:  
 Beta:

All Clients for Batch:  
 127642, Washington Closure Hanford LLC

Washington Closure Hanford LLC, RW2, 88144

MOCKXIAA-SAMP Constituent List:

MOCKXIAE-MS:

MOCLGLAA-BLK:

MOCLG1AC-LCS:

MOCKXIAA-SAMP Calc Info:  
 Uncert Level (#\$) : 2 Decay to SaDt: Y Bulk Subt.: N Sci.Not.: Y ODRs: B  
 MOCKXIA-C-MS Calc Info:  
 Uncert Level (#\$) : 2 Decay to SaDt: Y Bulk Subt.: N Sci.Not.: Y ODRs: B  
 MOCKXIAE-MS:  
 Uncert Level (#\$) : 2 Decay to SaDt: Y Bulk Subt.: N Sci.Not.: Y ODRs: B  
 MOCLGLAA-BLK:  
 Uncert Level (#\$) : 2 Decay to SaDt: Y Bulk Subt.: N Sci.Not.: Y ODRs: B  
 MOCLG1AC-LCS:  
 Uncert Level (#\$) : 2 Decay to SaDt: Y Bulk Subt.: N Sci.Not.: Y ODRs: B

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2  
 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added  
 Richland Wa.

WO Cnt: 9  
 ISV - Insufficient Volume for Analysis  
 COC v4.8.49

Sample Preparation/Analysis		Balance Id:										
DW Alkaline Digestion by method 3060A EA Chromium, Hexavalent (7196A)		Pipet #:										
51 CLIENT: HANFORD		Sep1 DT/Tm Tech:										
		Sep2 DT/Tm Tech:										
		Prep Tech:										
<b>AnalyDueDate:</b> 03/13/2013	<b>mg/kg</b>											
<b>Batch:</b> 3071064												
SEQ Batch, Test: None												
Work Ord, Lot, Sample Date	Total Amt/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments: